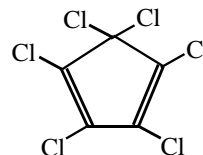


## HEXACHLOROCYCLOPENTADIENE

Hexachlorocyclopentadiene is a federal hazardous air pollutant and was identified as a toxic air contaminant in April 1993 under AB 2728.

CAS Registry Number: 77-47-4

Molecular Formula:  $C_5Cl_6$



Hexachlorocyclopentadiene is a yellow liquid with a pungent odor. It is virtually insoluble in water, and soluble in all portions in acetone, carbon tetrachloride, methanol, and hexane. In the presence of moisture it will corrode iron and other metals (HSDB, 1991).

### Physical Properties of Hexachlorocyclopentadiene

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Synonyms: 1,3-cyclopentadiene; 1,2,3,4,5,5-hexachloro; perchlorocyclopentene; hexachloro-pentadiene; HCCP

Molecular Weight:	272.77
Boiling Point:	239 °C at 753 mm Hg
Melting Point:	-9 °C
Flash Point:	none
Vapor Density:	9.42 (air = 1)
Density/Specific Gravity:	1.7019 at 25/4 °C (water = 1)
Vapor Pressure:	0.08 mm Hg at 25 °C
Log Octanol/Water Partition Coefficient:	3.99
Conversion Factor:	1 ppm = 11.16 mg/m <sup>3</sup>

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(HSDB, 1991; Sax, 1989; U.S. EPA, 1994a)

## SOURCES AND EMISSIONS

### A. Sources

Hexachlorocyclopentadiene is used as a chemical intermediate for insecticides, flame retardants, resins, dyes, and pharmaceuticals. Hexachlorocyclopentadiene is also used to make shock proof plastics, acids, esters, ketones, and fluorocarbons. It also has been identified as a combustion product in emissions from a waste incinerator (HSDB, 1991).

### B. Emissions

Toxic Air Contaminant Identification  
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No emissions of hexachlorocyclopentadiene from stationary sources in California were reported, based on data obtained from the Air Toxics "Hot Spots" Program (AB 2588) (ARB, 1997b).

#### C. Natural Occurrence

No information about the natural occurrence of hexachlorocyclopentadiene was found in the readily-available literature.

### **AMBIENT CONCENTRATIONS**

No Air Resources Board data exist for ambient measurements of hexachlorocyclopentadiene.

### **INDOOR SOURCES AND CONCENTRATIONS**

No information about the indoor sources and concentrations of hexachlorocyclopentadiene was found in the readily-available literature.

### **ATMOSPHERIC PERSISTENCE**

Atmospheric hexachlorocyclopentadiene will exist predominantly in the vapor phase (HSDB, 1991). No data are available concerning the tropospheric loss processes for hexachlorocyclopentadiene.

### **AB 2588 RISK ASSESSMENT INFORMATION**

Since no emissions of hexachlorocyclopentadiene from stationary sources in California have been reported under the AB 2588 program, it was not listed in any of the risk assessments reviewed by the Office of Environmental Health Hazard Assessment.

### **HEALTH EFFECTS**

Probable routes of human exposure to hexachlorocyclopentadiene are inhalation, ingestion, and dermal contact (Sittig, 1991).

Non-Cancer: Inhalation exposure may cause severe eye, nose, throat, and respiratory tract irritation. Symptoms include tearing of the eyes, headache, sneezing, salivation and difficult breathing. Skin contact may cause blistering and burning. High-level exposure induces

pulmonary edema, degenerative and necrotic changes in brain, heart and adrenal glands and necrosis of liver and kidney tubules (Sittig, 1991).

A chronic non-cancer Reference Exposure Level (REL) of 0.24 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) is listed for hexachlorocyclopentadiene in the California Air Pollution Control Officers Association Air Toxics "Hot Spots" Program, Revised 1992 Risk Assessment Guidelines. The toxicological endpoints considered for chronic toxicity are gastrointestinal and liver effects (CAPCOA, 1993). The United States Environmental Protection Agency (U.S. EPA) has not established a Reference Concentration (RfC) for hexachlorocyclopentadiene. However, the U.S. EPA has calculated a provisional RfC of  $0.07 \mu\text{g}/\text{m}^3$  for hexachlorocyclopentadiene. The U.S. EPA estimates that inhalation of this concentration or less, over a lifetime, would not likely result in the occurrence of chronic non-cancer effects. The U.S. EPA has established an oral Reference Dose (RfD) of 0.007 milligrams per kilogram per day for hexachlorocyclopentadiene based on stomach lesions in rats. The U.S. EPA estimates that consumption of this dose or less, over a lifetime, would not likely result in the occurrence of chronic, non-cancer effects (U.S. EPA, 1994a).

No information is available on adverse reproductive or developmental effects from exposure to hexachlorocyclopentadiene in humans or animals (U.S. EPA, 1994a).

Cancer: Human data are limited concerning hexachlorocyclopentadiene exposure and cancer, and no animal data are currently available. The U.S. EPA has classified hexachlorocyclopentadiene as Group D: Not classifiable as to human carcinogenicity. The U.S. EPA currently is reviewing a two-year inhalation study conducted with rats and mice (U.S. EPA, 1994a). The International Agency for Research on Cancer has not classified hexachlorocyclopentadiene for carcinogenicity (IARC, 1987a).

